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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,937	01/16/2004	David Jonathan Hall	213408-00037	4642

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KATTEN MUCHIN ROSENMAN LLP  
(C/O PATENT ADMINISTRATOR)  
2900 K STREET NW, SUITE 200  
WASHINGTON, DC 20007-5118

EXAMINER
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SHAHRESTANI, NASIR

ART UNIT	PAPER NUMBER
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3737

MAIL DATE	DELIVERY MODE
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01/21/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/757,937	<b>Applicant(s)</b> HALL, DAVID JONATHAN	
	<b>Examiner</b> NASIR SHAHRESTANI	<b>Art Unit</b> 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-9 and 11-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-9 and 11-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed 10/07/2008 have been fully considered but they are not persuasive.

Applicant alleges that the Wake reference discloses a method and system for optical imaging with concurrent collection of an optical signal. Examiner respectfully disagrees with applicant's allegation. First, there is no indication in the Wake reference that the detectors "concurrently" collect optical signals. In fact, the term "concurrent" is not even used within the text of the reference. Applicant has not provided citation as to where in the Wake reference there is "concurrent" collection of signal. Wake teaches a **time-gating circuit** used at regular intervals of time during the occurrence of the output (see abstract). Hence, it is clear that Wake teaches "sequential time-gating".

Furthermore, Wake teaches that breast tissue causes the photon beam to scatter, resulting in a zig-zag-like course (par. 0071). The plurality of photon beams (fig. 4, elements A, B, C, D, etc.) are considered to be "staggered" and these "staggered" beams are collected.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3-9 and 11-27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which

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was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The new amendments, limiting the claims to state "staggering collection" and "to stagger collection" are limitations which are not described within the specification. It is unclear how the reference to fig. 5 of the specification is sufficient to provide a method of "staggering collection of light". Furthermore there is no direction as to the method of "staggering"; the specification merely recites "...Temporal delays are then introduced in the propagation of these optical signals such that the m TPSF's reach the time-gated detector in a staggered manner..."

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-9, 11-27 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps and elements, such omission amounting to a gap between the steps and elements. See MPEP § 2172.01. The preamble of the claims is directed to a method and system for optical imaging; however no step and/or means are set forth for providing an image.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claims 1, 3-5, 15, 18-27** rejected under 35 U.S.C. 102(e) as being anticipated by Wake  
(US 2002/0100864 A1)

Wake teaches a method and corresponding system for optical imaging comprising the steps of injecting a pulse of light at an injection port into an object (fig. 1 and 2); collecting at collection ports, light from said object (par. [0020]), to provide an optical signal based TPSF (par. [0022]); and detecting on or more selected time gates of said TPSF to provide information to be used in producing an optical image of said scattering object (par. [0022]).

Wake further teaches wherein said light from said object is collected at two or more locations (detectors 12); wherein desired temporal delays are introduced in propagation of the optical signals (fig. 9A) to produce time delayed TPSF's (circuit 106) and wherein all of said selected time-gates are simultaneously detected (par. [0060]); and further teaches wherein the detector positions are proximal (fig. 2).

Wake further teaches the use of a fiber optic cable or bundle of varying lengths for directing a laser beam (par. [0020]), which can be adjusted to introduce the desired delays (par. [0080]) being coupled to one or more detectors and applied to a distinct detecting position (fig. 6).

Wake further teach a time delay circuit (element 106) which introduces a time delay to fine tune the synchronization pulse (par. 0082) and a programmable delay chip which in conjunction with a time-gating signal (element 128) which samples a portion of the TPSF curve that will be coupled an integrator (par. 0083).

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Furthermore, Wake teaches a time-gating circuit used at regular intervals of time during the occurrence of the output (see abstract). Hence, it is clear that Wake teaches "sequential time-gating". Wake also teaches that breast tissue causes the photon beam to scatter, resulting in a zig-zag-like course (par. 0071). The plurality of photon beams (fig. 4, elements A, B, C, D, etc.) are considered to be "staggered" and these "staggered" collection of beams are collected.

**Claims 6-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Wake (US 2002/0100864 A1) in view of Grable (US 5,692,511).

Wake teaches all the limitations of claims 1 and 5, but does not teach the basis of selecting time-gates.

Grable teaches the measurement criteria considering properties of light and thickness of the desired medium to be measured (col. 12 lines 60-62).

It would have been obvious to one of ordinary skill in the art to have modified Wake and to further include the considerations as taught by Grable in order to provide for optimal measurement of the medium and to reduce diagnosis time by selecting appropriate time-gates.

**Claims 13-14, 16-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Wake (US 2002/0100864 A1) in view of Mukherjee et al. (US 2002/0067901).

Wake teaches all the limitations of claims 1 and 12 but do not teach using a time-gated camera being and ICCD camera.

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Mukherjee teaches the aforementioned limitation wherein an object or medium is imaged using a fast time-gated camera such as an ICCD camera (par. [0039]).

It would have been obvious to one of ordinary skill in the art to have modified Wake and to provide ICCD cameras in place of the aforementioned detectors to provide for accurate imaging of a dynamically evolving entity.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NASIR SHAHRESTANI whose telephone number is (571)270-1031. The examiner can normally be reached on Mon.-Thurs: 7:30-5:00, 2nd Friday: 7:30-4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ruth S. Smith/  
Primary Examiner, Art Unit 3737

/Nasir Shahrestani/  
Examiner, Art Unit 3737